ISSN 1059-1249

The Magic Lantern Gazette

Volume 25, Number 3 Fall 2013

The Magic Lantern Society of
the United States and Canada

www.magiclanternsociety.org

Dion Boucicault's Magic Lantern

One of the most familiar and picturesque figures of distinction and brilliancy before the public for half a century has passed from the stage of life in the sudden death of Dion Boucicault, the dramatist and actor, the most remarkable writer of plays of his generation, and one of the few who has done enough to be immortal….

Day and night [he] was playing the magician with his pen. His brain was a **magic lantern** and a gold mine.

Murat Halstead, "Review of Current Events,"
The Cosmopolitan, November 1890

The quotation above about Dion Boucicault relates to one of the books reviewed in this issue of the *Gazette*. Boucicault was the leading Irish-American playwright of his day. Gary Rhodes's new book, *Emerald Illusions: The Irish in Early American Cinema*, discusses his work in some detail, including his influence on Irish-themed lantern slides and movies (p. 22).

As usual, I am about a season and a half late with this issue, but I hope it is worth the wait. As mentioned in the previous issue, I had intended to devote this issue to a long article on Professor Cromwell, but I did not get around to writing it. In the meantime, new material has arrived that forms the core of this issue. Francisco Javier Frutos, of the University of Salamanca in Spain, has contributed a long article on the history of techniques for making magic lantern slides, including hand-painting, printing, and photography. He has previously written extensively on magic lanterns in the Spanish academic literature and has published several books on the subject in Spanish.

Another unusual article comes from Jeffrey Gardner, a marine geologist who was encouraged to write the article by Terry Borton. He describes the lectures on the origins and uses of sand given by geology professor John P. Marshall from the 1870s to the 1890s. His well researched and well illustrated article reveals yet another unknown magic lantern lecturer, presumably one of thousands who lectured in the late 19th and early 20th centuries.

David Evans was inspired by the recent article by Esther Morgan-Ellis on song slides and organ music to provide a short piece on organ music slides in Britain.

The issue is rounded out with a diverse array of research summaries for the Research Page, drawn from journals in a wide range of fields. Included here are summaries of recent research articles in *The New Magic Lantern Journal* and several articles related to magic lanterns in *Early Popular Visual Culture*, including one by society member Erkki Huhtamo on the Spirograph, a movie projector that he demonstrated at one of our conventions some years ago.

Finally, there are short reviews of several recent books that should be of interest to readers of the *Gazette*.

As always, I am eager to receive long or short articles on aspects of magic lantern history and culture for future issues of the *Gazette*. So if you are doing research on some interesting topic, please keep our journal in mind as a place to publish your work.

Kentwood D. Wells, Editor
451 Middle Turnpike
Storrs, CT 06268
kentwood.wells@uconn.edu
860-429-7458

19th century hand-painted lantern slide. Wells collection.

From Luminous Pictures to Transparent Photographs: The Evolution of Techniques for Making Magic Lantern Slides

Francisco Javier Frutos
Universidad de Salamanca, Facultad de Ciencias Sociales,
Departamento Sociología y Comunicación. Despacho 313.
Campus Unamuno (Edificio FES) 37007, Salamanca, Spain
frutos@usal.es

In this article, I examine the evolution of techniques for registering images on glass used in the manufacture of magic lantern slides. This will show that, even before the arrival of the cinematograph, it was possible to have the full development of an audiovisual industry associated with objects of everyday use. The manufacture of glass lantern slides went through three stages of development. Painting techniques were the first to be employed. Hand-painting gave way to printing techniques in the first half of the nineteenth century, and in the second half, to photographic techniques, although the last two often included hand-coloring.

Glass Painting Techniques Used in Creating Magic Lantern Slides

The glass industry underwent a great boom starting in the last quarter of the eighteenth century, when the production of glass became less expensive. It became possible to manufacture high quality glass to use in optical instruments such as the camera obscura, the microscope, and the magic lantern. With its projection of images and the synchronic use of sounds, the magic lantern was an audiovisual form that always relied on glass as its fundamental medium for registering images.

Very few magic lantern slides survive from the period between the last half of the seventeenth century and the last quarter of the eighteenth. The transparencies from this period were roughly and irregularly painted on thick glass with slight waves and small air bubbles on the surface. These first glass slides usually were circular or rectangular, the latter horizontally much longer, with several images shown lengthwise. The images, painted in water color or oil, often by the lanternists themselves, represented scenes ranging from fables and children's stories to mythological, allegorical, and comic themes to current events.

To illustrate this type of graphic narrative, we should perhaps recall how in 1781, Benjamin Martin, a British author of books on science, gave testimony in his work, *The Young Gentleman and Lady's Philosophy*, of a magic lantern show in which images of a coronation were projected. They most certainly referred to the coronation of George II in 1727 or George III in 1760. The text takes the form of a dialogue between an academic, Cleon, and a young girl called Euphrosyne (Martin 1781, 288–289):

> **Cleon**: However, I must entertain you with something of this Kind, and, because the Subject shall not be low, I have procured an Artist, well-skilled in this Miniature Painting, to draw on two or three Slips of Glass the whole Proceeding of the late Coronation, which, when you observe the Motion on the Wall, you will certainly have a different Idea, that what you have hitherto entertained of these Subjects. See, I put the Slips in, one after another, and will move them in a proper Manner, while you take a cursory View of them as they pass in the regal Procession.
>
> **Euphrosyne**: This will be an elevated Subject, indeed: Good Heavens! The Herb-Woman appears at greater Advantage than when I saw her on the Platform at the Time. The Painter has certainly complemented her six Maids. The Flowers lie as naturally on the carpet as I then saw them. A delightful Appearance, indeed; the various Orders and Degrees of Gentry and Nobility, with their proper Habits, Robes and regal Investments bring to my mind so naturally the Thing itself, that I really judge this View, by Candle-light, much to exceed that by Day-light, if it may be so called when they returned from the Abbey.

Testimonies like this show how painting on glass was understood to require mastery of a difficult skill, since the projections unmercifully magnified the tiniest detail, and thus a tiny speck would be seen as an enormous spot, and a disjointed drawing would exhibit clear evidence of its mediocrity. Color transparency was another problem added to the possible irregularities of the glass medium: if the layer of paint was applied too thickly, or too much pigment was used, the images would turn into dark shadows. Today it is easy to recognize transparencies from the seventeenth century because the use of pigments and paints was not very skillful.

Watercolors generally were preferred to oil owing to their transparency. For example, the German Christian Gottlieb Hertel mentioned as early as 1716 in his work *Vollständige Anweisung zum Glass-Schleiffen* how at first he used oils, but then he saw that over time the colors turned brown and even-

tually became completely dark and opaque. For this reason Hertel ends by recommending the use of watercolors, as their color was more stable, and with a coat of varnish they became more intense and transparent.

Also, Hertel advised drawing first on paper the images to be later produced on glass magic lantern slides. Then he would place a thin piece of glass on the drawing and trace the exact outline of the drawing in black or brown such that it could be eliminated with vinegar. Once this was done, Hertel delicately painted the interior of the outline in watercolors, seeking a transparent effect, then covered the rest of the glass in opaque black paint so that the drawings and colors would stand out. An inscription could then be written on this black background using a needle or fine paintbrush. Finally, it all had to be covered in clear varnish to protect the paint from heat and damp.

The most delicate stage of painting magic lantern slides was the preparation of the watercolors. The artist had to be something of a chemist, able to manipulate substances such as dragon blood (a red resin), cow bitters, or ground bladder with great care. He also had to know how to deal with varnish –a mixture of sandarac (cypress resin), mastic (mastic resin), wine spirits and lavender oil–so that it would not crack, and therefore a bit of turpentine was added.

Another German author, C. L. Deneke, gave very precise instructions in his *Vollständiges Lehr-Gebäude der ganzen Optik* (1757) on how to paint glass slides for magic lanterns. In the first place, he emphasized the need for acquiring pure crystal from France or Bohemia, and then the importance of charging a glassmaker with cutting it to shape in the form of discs, squares or rectangles, in a slightly smaller size than that of the lantern's condensing lens. The glass was first cleaned with ground gypsum, and then using a weight and a little glue, the artist would place on the glass plate the images previously drawn on paper or taken from an engraving. Next, with a fine paintbrush and a little ground black pigment of animal origin, to which he had added some linseed oil and painter's varnish, he would very carefully and accurately retrace the outline of the design on the glass. Once this was done, the glass was removed and the drawing corrected if necessary.

Once the drawing on the glass had dried, Deneke added the shadows; that is, he would draw the black lines showing the folds in clothes and similar traits. Then there was another wait. Meanwhile the painter could prepare his brushes and colors: Berlin blue; indigo; yellow from berry juice; green lily; a beautiful red squeezed from authentic Pernambuco wood (an exotic leguminous tree), boiled and prepared; brown from the sap of walnuts; distilled verdigris, and so on. When the shadows were ready, Deneke then applied a mixture of pigments and varnish on the glass using a paintbrush. The next step consisted of covering the background with

Fig. 1. 19th century British hand-painted lantern slide. Wells collection.

black oil paint. Shadows could also be added to the illustrations after they were colored. Finally, he built wooden frames for them out of dry beech. If the glass was circular, he would make hollows in a wooden board and place six discs on one board. If the glass slides were square, he would place four, three or only one, depending on the needs of the story. Finally, the pieces of glass were fixed to the frame with a thin open hoop, ensuring that they would be guaranteed to slide in the magic lantern slide holder.

The technique for making pictures on glass magic lantern slides scarcely changed with the turn of the century (Fig. 1). Evidence can be found in the manuals devoted to the subject, such as *The Art of Transparent Painting on Glass* (Groom, 1855), *Directions for Transparent Painting on Glass* (1856), *Chrysophoron for Illumination* (1864), *Transparent Painting on Glass in Water, Oil and Varnish Colors* (Rintoul, 1867), or *Magic Lantern: Dissolving View Painting* (1876). To give an example of these, we might take a look at the first one, the text written by Edward Groom. Besides giving a summary of the tools, materials, and operations necessary for painting magic lantern slides, it also included advice as curious as it was practical: "For the execution of these works, daylight is not necessary; indeed, as they are intended for exhibition by artificial light, it is found that the effect of those executed by gas, or lamplight, is preferable to that of those painted by daylight" (Groom 1855, 8).

As regards the tools and materials used in painting glass for magic lanterns, Groom's text offers the following list: "… glasses, frames, a fine pointed pencil and holder, palette knife, brushes, dabbers, rest stick, a round pointed knife, an etching needle, a few pieces of cloth, and water-colours" (Groom 1855, 12). The artist had to know how to distinguish between the two sides of the glass:

> Glass has a rough and smooth side. The means of distinguishing these, is to draw the finger-nail over the surface, when the rough side may be readily determined by the gritty particles which occur sensibly to the nail. As these particles would prevent the colour from lying evenly, the smooth side is that on which the drawing must be made, and the painting executed. For common subjects, that material called flatted crown glass, will be found suitable, but if nicety of execution is necessary, the plate-glass must be used. In all cases, it must be as free from specks as possible, and of the same size as the object-glass of the magic-lantern, through which the pictures are to be exhibited (Groom 1855, 12-3).

The frames on which the glasses were mounted were usually made of mahogany or pine, and could be square, rectangular, or circular. The fine-pointed pencil was used to draw silhouettes and was more comfortable and quick to use than a paint-brush, which had to be made of sable hair; soft to the touch, but firm and elastic. The palette knife was used to mix the dyes, and to place colors on the palette as well as remove them. It had to be thin, flexible and pointed. The palette could be made of unstained porcelain or enameled wood. The colors on the palette were usually arranged thus: "the light and warm colours are placed near where the thumb passes through the palette, and hence the darker and cold colours are continued round the rim. Thus the gall-stone would be placed nearest the thumb, then the rose madder, and, lastly, the blue" (Groom 1855, 26).

The dabbers were made from round paintbrushes of very fine camel hair, and they were used to blur and soften parts of the pictures, for example, the sky. Groom describes the danger of overusing dabbers when painting on glass –which was the same as overdoing softening in oil painting- and therefore he recommends that that size of the dabber should be proportional to that of the painting fragment in question: "Some painters use the point of the fore-finger as a dabber, and when used with dexterity, it is very effective. A serviceable dabber may also be formed by tying a little cotton wool in a piece of soft white kid. All these dabbers may in turn be employed with advantage" (Groom 1855, 38).

Another group of instruments necessary for painting included an easel (a rack easel drawing board), a rest stick (used, as in oil painting, to rest the hand and hold it steady when fine, precise work is needed), a round pointed knife (useful for removing color when the desired effect was white or to create white or colored lines on black surfaces), and an etching needle for creating the effect of tiny strokes of light, for example, on blades of grass.

The colors were the same as the ones used in watercolor painting and were available in tubes. The number of colors available for painting on glass was necessarily limited, since only transparent ones could be used, that is, ones that let the light through: yellow (Aureoline, Gamboge, Italian pink, Gallstone, Indian yellow), red (Madder Lake, Crimson Lake), blue (Prussian blue, Indigo), Burnt Sienna, brown (Madder brown, Vandyke brown), and Lamp black.

Groom's text groups the stages involved in painting into three operations: drawing the outline, coloring, and finishing. To keep the outline intact throughout the different stages, there were basically three possibilities: a) If the image was an engraving, and the glass onto which it was going to be transferred covered it sufficiently, the shortest process was to trace it; b) If the subject of the composition was too large or too small to trace, it had to sketched onto paper of the right size, using, for example the system of ruled squares, and then traced; c) Photography was also of enormous importance in painting on glass. Photographic images could be projected onto the disk and the advantages and opportunities that it offered for capturing faithful views of places, buildings and objects was of incalculable value.

The second operation, coloring, entailed certain problems, since one had to paint with a view to the final visual effect on the projection screen rather than to the immediate result on glass. Furthermore, the choice of pigments was limited, since, as mentioned earlier, they had to be as transparent as possible, and watercolors were still preferred to oils because of their lesser opacity and quick drying time. The same as with any kind of painting, when painting on glass one had to begin by resolving the background in the picture and gradually move to the foreground. Light and shadow had to be more intense in the foreground than in any other part of the composition, because the objects they fall on are in positions closest to the viewer. According to Groom, the strictest attention to detail was required when painting the foreground, where the objects are so close to the eye that their structure and surface are clearly visible:

> By detail, is understood not only a realization of the forms of the nearest objects, by truthful drawing and observation of their light and shade; but also a description of their components, surfaces, and materials. Force, substance, reality, and detail, are primary qualities of foregrounds, inasmuch as they describe objects in immediate proximity, and serve to cause the retirement of the middle and remoter distances (Groom 1855, 35).

To emphasize even further the degree of complexity reached in the coloring process, we can refer to Alexander Nelson Rintoul's 1867 publication, *Transparent Painting on Glass in Water, Oil and Varnish Colors*. Rintoul advised avoiding blues and greenish yellows so that the image would look better when projected. He encouraged the painters to make a complete table of pigments, and offered guidance in how to achieve certain effects with the use of a series of previously mixed colors: to obtain a pigmentation resembling "close-up skin" he recommended a mixture of Indian yellow and carmine, whereas the best way to achieve a "far-away" skin color was with Venetian red and Gamboge, a resin obtained from the tropical tree of the same name. In addition, combining Gamboge with Prussian blue and Indigo gave the best results for distant or close-up greens.

Finishing was the third and last operation required for making magic lantern slides. In this final stage, each part of the picture had to be reconsidered to decide whether it was necessary to soften, blur or intensify any parts to achieve a harmonious overall effect. Once the composition on glass was finished, it had to be protected; this was done mainly through two methods: a) By covering it with another fine piece of glass with the rough part facing the inside. Next, the two pieces of glass were stuck firmly together with a strip of glued paper. To avoid damaging the paint with the glass covering it, a narrow rim of thick paper was placed between the two pieces of glass and stuck on the outside edge of the glass with glue or paste. Previously, when painting, the artist had to be careful to leave the outer rim of the piece unpainted. b) The whole work also could be finished using just the one piece of glass. In this case, the paint was secured using a thin layer of lac varnish or varnish mixed with turpentine. Varnish also could be used along the different stages to fix the colors.

Together with watercolors, oil paints also were used in making compositions on glass, and the techniques were similar, the main difference being only the materials used. The same tools and the same repertory of colors were used, except that Italian pink was used instead of Gamboge because it was richer and more transparent. Indeed, watercolors and oils were sometimes used in combination, with excellent results. The watercolors created a delicate effect, clear and brilliant, whereas the solidity and richness of tone of the oil colors were perfectly suited to certain parts of the composition, such as some elements in the foreground and some figures that required full tonality and pronounced relief.

Thanks to superb painting techniques, some glass slides for magic lanterns resembled works of art. To understand this, it is sufficient to consider the most important images used in the sessions offered during forty years at one of the most famous cultural centers in nineteenth century London, the Royal Polytechnic Institution. Starting with its inauguration in 1838, the Royal Polytechnic offered all types of educational exhibitions, talks, leisure events, and assiduously programmed lectures illustrated with magic lantern views and sophisticated optical shows that combined projected images, sound effects, acting, narration, and music. At the Royal Polytechnic, as many as seven magic lanterns were used at the same time, as well as a good number of accessory devices installed behind the screen for producing sounds such as thunder, wind, or cannon fire. Some of the transparencies used in the institution were exceptionally large, with frames measuring 64 x 25.5 cm holding glass measuring 21.5 x 16.5 cm. Thus, the quality and wealth of detail of the images were matchless. Among the painters hired to make these slides were W. R. Hill (Fig. 2), Edmund H. Wilkie, Charles Gogin, Thomas Clare, E. H. Doubell, Perrin and C. Smith. In fact, when the Royal Polytechnic Institution closed in 1882, and the contents of the building were publicly auctioned, the collection of slides was one of the most desirable lots. Three hundred of them were acquired by E. H. Wilkie, and many of them were handed down to Will Day and currently form part of the collections of the Cinémathèque Française. Also from these holdings were two series that are now in the Museum of the History of Science, Oxford, as well as some other series that are biw ub various public and private collections, such as that preserved in the National Museum of Photography, Film & Television (Crangle, Herbert, and Robinson 2001).

Fig. 2. Hand-painted lantern slide from the Royal Polytechnic Institution. Attributed to W. R. Hill. Size: 27.7 x 27.7 cm. Collection of the Cinémathèque française.

The technique for painting the glass slides of magic lanterns was so laborious that it could take several days to obtain a quality image. It is therefore not surprising that they were

gradually replaced, especially in the last quarter of the nineteenth century, by printing and photographic techniques.

Printing Techniques and Magic Lantern Slides

Printing techniques included a set of methods and processes that can reproduce, stamp, or print images based on a matrix. This matrix can be made of different materials, such as wood, stone, metal, or linoleum, according to the technique or process used; for example, wood engraving, linoleum, dry point, etching, aquatint, copper engraving, silk-screen printing, or lithography.

Owing to the high production costs involved, which also made the commercialization of magic lantern slides expensive, hand-painting was gradually replaced by, or complemented with, mechanical printing of drawings on glass, leaving only the coloring to be done by hand. One of these first mixed procedures for mass manufacturing was used by the English optician Philip Carpenter, who described it in 1823 in his book *Elements of Zoology,* when applying it to illustrate a series of 56 images on glass that represented mammals, birds, amphibians, insects, and other themes from nature (**see back cover**). In his attempt to mass produce them, Carpenter engraved all the outlines and the details of each image on a copper plate. He then applied black ink mixed with varnish on the plates, and printed these outlines on glass. Carpenter's technique was copied by many European firms that manufactured glass slides. This mixed method was offered in their catalogues until well into the twentieth century. For example, the English firm, Brodie & Middleton, included accessories suitable for the personal creation of slides by selling series that were made to be colored at home.

The printing technique most widely used in manufacturing magic lantern slides was lithography, a technique discovered accidentally in 1796 by German printer Aloys Senefelder. It seems that Senefelder had a Kelheim stone plaque on his table that he used to prepare the ink for printing. At a moment when he didn't have paper or pencil at hand, he did some arithmetic on the stone using the ink he had been preparing from wax, soap and soot. To erase the operation he poured nitric acid (which he used to engrave on copper) on the stone. After some minutes had passed, he saw that the nitric acid had corroded the stone except in the area where he had written. The oil from the ink had protected these bands and they appeared in slight relief. Given that the systematic use of this procedure greatly facilitated printing of images, Senefelder himself developed trichrome and quadrichrome processes applied to lithography, thus giving rise to chromolithography. Following Senefelder, other printers, such as William Savage, managed to incorporate up to thirty different colors in their prints.

The procedure for chromolithography, that is, lithography that combined several colors or inks, was based on the use of one plate for each of the colors. One first had to draw the part corresponding to each color on a different stone, which was then tinted with the chosen color. This meant that the artist had to have a very clear idea of the image to be obtained in order to be able to break it down into parts and calculate the number of matrices needed. Of course, it was also very important not to forget that in the definitive print run, when two colors are superimposed, a third color is obtained. To break down the drawing, the simplest procedure consisted of making a drawing on paper and then, using tracing paper, transferring to each of the stones the outline corresponding to the areas meant to have the same color. A quality color print had perfectly registered colors.

The method that worked best for manufacturers of glass slides was the use of a small chromolithograph printed in transparent colors that was then stuck onto the pieces of glass simply by wetting it slightly. The procedure, known as "transfer" or "decal," was also inspired by a technique invented by British printers Sadler and Green at the end of the 1750s to transfer printed images to ceramics. Colorful transfers made with cold water required porous paper covered in a solution of starch, albumin, and glycerin, onto which the colors were printed, first the details and then the background, and a coat of glue was used to finish it. The paper was then moistened and placed on the glass, and after a few seconds the image is transferred to the glass. Then the paper had to be removed and the transfer examined to see if it had stuck properly to the glass.

In Great Britain around 1870, the manufacturer J. Barnard & Son industrially produced the first really successful decal transparencies in full color. The decals were printed in enameled inks that were subsequently cooked once the illustrations had been transferred to the glass. The pieces of glass were circular, and mounted in mahogany frames measuring 7 (17.78 cm) x 4 (10.16 cm) inches, covered by protective glass that was in turn held in place by a metal ring.

Fig. 3. Magic lantern slide decorated with the printing technique from the London firm of W. Butcher & Sons (Primus 'Junior Lecturers' nº 776). Title of the series comprising 24 slides: *Alice in Wonderland*. Size: 8.3 x 8.3 cm. Collection of F. Boisset and S. Ibáñez.

After 1885, when magic lantern slides measuring 8.25 cm long flooded the market, a size that had become a kind of "standard" for the chassis of the projector, the popularity of decal slides for magic lanterns rose sharply. For example, in 1892, the stock of the firm Theobald & Co. was estimated to be between two and three million units, and the London Company W. Butcher & Sons (1870–1906) commercialized this kind of slide with the trademark "Primus" under the "Junior Lecturers" series (Fig. 3). With approximately a thousand titles to choose from, the "Junior Lecturers" series were sold as games that included eight glass slides protected inside a cardboard box. Some slide games contained funny stories and children's stories. Many of them contained printed texts on the slides themselves, and other collections included printed explanations in the form of notes for a talk. Longer stories required two or more chapters, and thus another set of eight slides per chapter. The pieces of glass were covered by a thin piece of protective glass and framed in black paper ribbon. The images were framed with black paper that marked them out in circular form or in squares with rounded corners. Slides produced by decal transfers also were the most common type of slide made by German toy magic lantern manufacturers in the second half of the 19th century (Fig. 4).

Fig. 4. 19th century German decal-type toy lantern slide. Wells collection.

Often the sources of inspiration for the images on the slides came from printed illustrations, a medium that had been developing in parallel to the magic lantern and with which it had much in common. Indeed, the print media, ranging from postcards to caricatures to newspaper illustrations and comic strips, had the same urban, industrialized and literate audience that enjoyed the magic lantern, an audience that congregated in the sitting rooms of their homes to project domestic magic lantern sessions, to leaf through illustrated publications, or to listen to readings of episodes of serialized popular literature.

An example of how the printed stories migrated to magic lantern slides can be found in the work of Wilhelm Busch. Besides making history by creating the naughty duo known as Max and Moritz in 1865, Busch drew, among other comic strips, those of *Diogenes und die bösen Buben von Korinth* (Fig. 5) or *Maler Klecksel*, which show how many of their adventures served as a model for printing numerous collections of magic lantern slides. The fact that Busch did not use borders on the comic strips, and very rarely text balloons—

Fig. 5. Illustration by W. Busch from the series *Diogenes und Die Bösen Buben von Korinth* (1863) and two magic lantern slides from different collections with the same image. Collection of F. Boisset and S. Ibáñez.

when they did appear, they were located underneath the drawings–explains in part how easy it was to adapt his works to the visual style of the magic lantern, and thus the interest of manufacturers in making slides of his comic strips.

Photographic Techniques and Magic Lantern Slides

Practically all systems for developing photographic negatives in the nineteenth century were changed to permit printing on glass slides. Depending on the format of the negative, there were two methods for obtaining the positive image: a) If no reduction or enlargement were necessary, then the slide could be printed by contact; that is, by superimposing the negative directly on the glass or using a copying medium. b) If the format of the negative had to be adapted for the slide, a copying camera had to be used. This consisted of a long box that held the negative at one end, had a lens in the center to focus the image, and a device at the opposite end to hold a piece of glass at the right distance for receiving a positive image in the required size.

The first commercial photographic magic lantern slides were made by brothers William and Frederick Langenheim in the United States in 1850. Their preparation depended on a developing process based on superimposing albumin on glass, invented by Abel Niépce de Saint Victor in 1848. The process was patented under the name hyalotype, very similar to the crystallotype patented by J. A. Whipple of Boston. On occasion, the hyalotype process was also used to make larger pieces of glass that could be placed in windows and doors for decorative purposes. Owing to its long exposure time, albumin was soon replaced with collodion for making photographic negatives. Nonetheless, albumin's capacity for high translucence and excellent definition meant it was still used to produce slides for both the stereoscope and the magic lan-

tern until well into the twentieth century, especially in France and Great Britain, by companies such as Negretti & Zambra.

Starting in 1857, the manufacturers of photographic slides for magic lanterns adopted the wet plate collodion developing process invented by Frederick Scott Archer, a procedure that facilitated taking negatives and brought way down the cost of creating positive slides. The process consisted of taking clean glass and poring over it a fine layer of collodion (nitric cellulose dissolved in ether) and then sensitizing it with silver nitrate. The exposure of the image had to take place while the solution stayed wet. This procedure posed no problem as regards the industrial production of slides, and therefore collodion was the principal method for developing associated with the manufacture of magic lantern slides until the first decade of the twentieth century. For photographers, however, the preparation of negatives on site was complicated, so many amateurs experimented with dry collodion developing, attempting to preserve the speed of the wet collodium process. Some of these dry collodion developing processes, such as the one based on tannic acid invented by the Englishman Charles Russell, were applied rarely in the manufacture of magic lantern slides.

In any of its forms, collodion provided a simple process for reproducing the finest details. Such was the case that John Benjamin Dancer used it to produce microphotographs that could be seen under a microscope or projected onto a screen. Thanks to this procedure, his firm was able to put on the market more than five hundred different images. Dancer used a magic lantern and a microlens–a lens to reduce instead of enlarge an image—to produce fine grain collodion microphotographs from conventionally sized negatives. These tiny microphotographs, some as small as 0.8 mm, generally done on glass, were normally viewed through a microscope. The first projections of microphotographs that we know of took place during the Franco-Prussian War between 1870 and 1872. A series of messages converted into microphotographs and transported by carrier pigeons served to establish a vital link between the besieged city of Paris and the rest of France. When they arrived at their destination, these microscopic slides were "deciphered" by projecting them with a magic lantern so their transcribed messages could reach the besieged citizens.

Although its results were of lesser quality, carbon-based developing was applied with equal success by amateur photographers and manufacturers of magic lantern slides. This system, which worked only on photographic positives, was invented in 1855 by A. L. Poitevin in an attempt to obtain durable copies, but did not become popular until J. W. Swan introduced prefabricated carbon plates around 1864. Since the positive image was formed on a film of gelatin, the carbon images could be transferred to any surface, including a thin plate of glass. The color of the slides could be changed using different carbon pigments. Carbon images were not made based on photographic granularity, but thanks to variations in the thickness of the pigmented gelatin layer. Since this layer is extremely thin and translucent, the developing procedure adapted perfectly to the needs of projection. The photographic process invented by Walter B. Woodbury in 1865 followed the same principle. The difference was that the carbon pictures were photographs produced through exposure, whereas those made using the Woodbury method came off a printer. In around 1870, Woodbury began to use his method in his own company in the manufacture of magic lantern slides, and a short while later it was used by the concessionary firm of J. Carbutt, the American Photo-Relief Printing Company, located in Philadelphia.

Amateur photography received a boost with the introduction of the dry gelatin plate, whose speed and easy handling made it the starting point for snapshot photography a little before 1880. However, the gelatino-bromide emulsion plates that were used successfully to develop negatives were not good for photographs destined for projection, because the grain was too thick and the projected picture of poor quality. The use of a dry plate covered in gelatino-chloride of silver was adapted for work on glass by J. M. Elder and G. Pizzighelli in 1881. After that, different manufacturers, such as the British firms of Edwards, Ilford, and Thomas & Co.; the Germans Unger & Hoffmann and Perutz, as well as Kodak and Lumière, began to produce their own magic lantern slides. Unlike development with collodion, the gelatin plates could be coated mechanically and sold at comparatively affordable prices. With these improvements, customers could buy prefabricated plates and chemicals for photographic developing, such that they only had to expose the glass and process the image. If one wished, the picture could be colored with a single color that ranged between blue and red-sepia.

Although most experts considered the quality of gelatin slides to be slightly inferior to those processed with collodion, the impact of the use of the gelatin plate on amateur projection photographers was twofold: on the one hand, as a negative process, it increased the number of photographs; on the other, in regard to positives, it simplified the production of slides. Thus, the practice of projecting one's vacation pictures to family and friends was able to take its first steps. However, the new photographic techniques did not just stimulate the imagination of amateurs. The American photographer Alfred Stieglitz, who fought hard to make photography an art form on a level with painting and sculpture, used glass a medium for some of his most famous works. A good example of this is *Winter on Fifth Avenue,* which according to the photographer himself was taken in New York in 1893, after waiting almost three hours in a spectacular snowstorm (Fig. 6).

Techniques for registering photographs on glass also made possible the famous Life Models, collections of slides with images of "natural models" that were commercialized by Bamforth & Co. in England starting in 1870, and in the

Fig. 6. *Winter on Fifth Avenue* (1893). Three images from the work of Alfred Stieglitz that show that they were produced as lantern slides using photographic printing techniques. Collection of the George Eastman House.

United States by the New York firm of Scott & Van Altena. The Life Models collections consisted of slide sets of up to 50 units, mostly colored in by hand, that showed figures in very elaborate sets, dramatizing stories that had to be completed with texts inscribed on the slides themselves or by a narrator (Fig. 7).

The amount and the diversity of magic lantern slides produced over more than two centuries was such that by the end of the nineteenth century, the catalogues published to bring together the supply of commercialized slides came to have more than 1200 pages containing an inventory of approximately 200,000 slides. These catalogues offer proof that the three techniques for registering images on glass slides—painting, printing, and photography—survived together until the decline of the magic lantern in the first decade of the twentieth century, although the first of these was in continual crisis, as can be deduced from the following fragment of an article entitled "A Dead Industry" (*The Engineer* 1894, 439):

> Practically speaking, photography has about killed lantern slide painting as an art, although colorists are now numerous... Westley, of the firm of Carpenter & Westley, encouraged those who had skill in the work, among whom were Messrs. S.H. Baker, J. Smith, Thomas Clare, Thomas Kearnan, the cleverest painter of architectural slides; Henry Childe, an expert at scenic effects such as rippling water, summer and winter landscapes, and moonlight effects; Charles Simpson, a miniature painter by profession, and C. Constant, who made himself immortal by painting the original of the world famous slide of the sleeping man swallowing rats.

Fig. 7. Photographic magic lantern slide of the life model type by James Bamforth. Title of the series comprising 10 slides: *Tit for Tat.* Size: 8.3 x 8.3 cm. Collection of the Cinémathèque française.

Bibliography

Armstrong, Isobel. 2008. *Victorian Glassworlds: Glass Culture and the Imagination 1830-1880*. Oxford: Oxford University Press.

"A Dead Industry". 1894. *The Engineer* (London), 23: 439.

Chrysophoron for Illumination. 1864. London: Windsor & Newton.

Crangle, Richard, Stephen Herbert, and David Robinson. 2001. *Encyclopaedia of the Magic Lantern.* London: The Magic Lantern Society.

Crompton, Dennis, David Henry, and Stephen Herbert. 1990. *Magic Images: the Art of Hand-painted and Photographic Lantern Slides.* London: The Magic Lantern Society.

Deneke, C. L. 1757. *Vollständiges Lehr-Gebäude der ganzen Optik*. Altona: David Iversen.

Directions for Transparent Painting on Glass. 1856. Boston: M. J. Whipple & Co.

Frutos, Francisco Javier. 2009. Historietas mágicas: Orígines del relato gráfico y proyección de imágenes. *Diálogos de la Communición* 78:1-11.

Frutos, Francisco Javier. 2010. *Los Ecos de una Lámpara Maravillosa: La Linterna Mágica en su Contexto Mediático*. Salamanca, Spain: Salamanca Editiones.

Groom, Edward. 1855. *The Art of Transparent Painting on Glass.* London: Windsor & Newton.

Hertel, Christian Gottlieb. 1716. *Vollständige Anweisung zum Glass-Schleiffen*.

Magic Lantern: Dissolving View Painting. 1876. London: Brodie & Middleton..

Martin, Benjamin. 1781. *The Young Gentleman and Lady's Philosophy.* London: W. Owen.

Rintoul, Alexander Nelson. 1867. *Transparent Painting on Glass in Water, Oil and Varnish Colours.* London: Brodie & Middleton

Acknowledgements

This article was written as part of a research study, *El cine y la organización de los repertorios comunicativos asociados a sus antecedentes históricos: el caso de las imágenes de la linterna mágica* (Cinema and the organization of communicative repertories associated with their historical background: the case of magic lantern images) carried out at the School of Arts and Humanities—Film Studies—of Oxford Brookes University (June to September 2012), thanks to funding for international teaching and research mobility from the Regional Government of Castile & Leon (Orden EDU/662/2011, Consejería de Educación. Junta de Castilla y León).

Francisco Javier Frutos is a Senior Lecturer in the Department of Sociology and Communication of the University of Salamanca. Among his published monographs are *La fascinación de la mirada: Los aparatos precinematográficos y sus posibilidades expresivas* [The fascination of the gaze: precinema devices and their expressive possibilities] (1996), *Las placas de linterna mágica y su organización taxonómica* [Magic lantern slides and their classification] (2007) and *Los ecos de una lámpara maravillosa. La linterna mágica en su contexto mediático* [The echoes of a marvelous lamp. The magic lantern in its media context] (2010).

The Magic Lantern Society of the United States and Canada

Announces Its Third Annual

$500 Student Essay Award

The Magic Lantern Society of the United States and Canada is pleased to announce its third annual Student Essay Award contest.

The award has been created to invite the participation of young scholars, archivists, and artists in research on the magic lantern. We welcome submissions related to the culture, practice, and study of the lantern, from the 1600s to the present, anywhere in the world, but most especially in America or Canada.

Entrants must be enrolled in a graduate or undergraduate academic program at the time of submission. Students may submit essays originally written for academic courses, but may not submit anything previously published in print or online. Submissions should be written in English and should not exceed 5,000 words.

All submissions are due electronically by April 1, 2014.

A committee of the Society will select the winner. The award, which consists of a monetary prize of US $500, will be announced on June 1, 2014, and the essay will be published soon thereafter in *The Magic Lantern Gazette*, the Society's print and on-line research journal. The winner also will be invited to make a presentation at the Society's Convention, to be held near Boston on July 10-13, 2014.

Please send your submissions (in Microsoft Word format) to the editor of *The Magic Lantern Gazette*:

Kentwood Wells (kentwood.wells@uconn.edu)

To review back issues of the *Magic Lantern Gazette*, please visit **http://library.sdsu.edu/scua/online-materials/magic-lantern-pubs/gazette**

An Illustrated Lecture on "Sand: Its Origin and Uses" Geology Through the Eyes of John P. Marshall, Former Tufts College Professor

Jeffrey D. Gardner PG, CPG
Senior Marine Geologist, Ocean Surveys, Inc.
jdg@oceansurveys.com

Professor John P. Marshall was one of the first members of the Tufts faculty, who was initially responsible for instructing all scientific work (~1853-1860). Later as more professors were added and the college grew toward university size, he limited his courses to geology and mineralogy (Sauer et al., 2000). His love of those subjects included the hobby of mineral and fossil collecting, specimens of which he shared with the students and included in the college's permanent collection.

Using the most common form of optical illustration at the time, the stereopticon or magic lantern, he presented many geology lectures (~1870-1898) that were extremely well received by the public for their beautiful slides and associated scientific descriptions, which Dr. Marshall made easy for the public to understand. His lectures, often entitled "Sand: Its Origin and Uses", were very unusual and possibly unique, as he discussed and presented colorful illustrations of real thin sections of rock, sand, and other materials viewed and projected through a microscope. The slides were not photographs of microscopic views such as those available from the McAllister or McIntosh stereopticon catalogs. A review of his lecture by *The Lyceum Entertainment Bureau* (1879) quoted the *Boston Transcript*; "The illustrated portion of the lecture was especially rare in its novelty and instructiveness, and the illustrations were frequently and very generously applauded, as they richly merited".

Brief Biography

John Potter Marshall (Fig. 1) was born in Kingston, New Hampshire in 1823 into a well-rooted New England family; his mother was the great granddaughter of Governor Dudley, the state's highest elected official (Start, 1896). While his childhood apparently passed rather uneventfully (or more likely undocumented), after preparing for college at a couple academies, at the age of 16 his father insisted he learn a trade prior to attending Yale. As a result, he spent a year working as a carriage builder in Boston. He then excelled in college, spending 4 years near the top of his class (1840-1844) and graduated with honors. His career started in the state of New Hampshire as a teacher at a Baptist academy in Effingham (Start, 1896), followed by tenure as a principal in Lebanon. He eventually moved back to Massachusetts where he was a teacher and principal in Danvers, and then principal at Chelsea High School.

Fig. 1. Professor John P. Marshall (1861) during his term as acting college president. Photo taken by W. Loring Clark. Tufts Digital Archives.

John Marshall served very successfully in this capacity until he received an offer for a professorship at a new college being created. Despite the extremely low pay, he felt it was his duty to aid in the advancement of higher education, and he was one of the first professors to be appointed to Tufts College. He was married in 1853 to Caroline Clement of Chelsea, who helped him make life pleasant on "the hill" for the faculty and students during the early years. In the beginning, Professor Marshall was responsible for teaching Math, Philosophy, Chemistry, Natural History, and French (Miller, 1986; Start, 1896). As time went on and new instructors were added, his duties lightened and he concentrated mainly on geology classes. In addition to a wide variety of teaching positions, over the 45+ years Professor Marshall was associated with Tufts, he also was Acting President for a year

(1861), Dean of Faculty (1892-1898), and Director of the Barnum Museum. (Yes, P.T. Barnum of the famous Barnum and Bailey Circus, who donated the stuffed remains of Jumbo the elephant to the college in 1899, when it became the school mascot; but that's another article!)

During the Civil War, Dr. Marshall spent two years in hospital duty down south. Despite being urged to return to Boston, he felt that the people fighting for their country needed him more. Several years after returning from the war and in need of rest (1872), he took a 14 month leave of absence to travel Europe, visiting England, Germany, and Italy. He returned again in 1874 to visit primarily Switzerland (Start, 1896). While continuing at the college, Professor Marshall was active in secondary education, helping establish local academies (Sanford in Kingston, NH) and serving on school committees and the State Board of Education for eight years. His wife Caroline passed away in 1895, and he followed in 1901 a few years after his retirement (1898), still holding a position as Professor Emeritus at the college (Miller, 1986). Described as gentle, chivalrous, kind-hearted, and "rich in old-school courtesy which is so rare among us in these modern times" (Start, 1896), his interest in the young men and women of the college was deep and personal. As a result, a bronze relief of Dr. Marshall resides in Goddard Chapel on the Tufts campus (Sauer et al., 2000).

Marshall's Magic Lantern Show

Information on Dr. Marshall's lectures is found in newspaper articles from the period that provide fairly detailed commentary on the nature of his presentations. Unfortunately to date, no lantern or slides have been located in university archives and storage facilities. However, the combination of newspaper reviews and general knowledge of geology and optical mineralogy allow us to make an educated assessment of what some of the show's projected illustrations might have looked like. Articles state he used "quartz or siliceous formations, including feldspar, agate, granite, sandstone, sand, and fossil wood" among other slides (*The Lyceum Entertainment Bureau*, 1879). Examples of types of slides he may have used are included as figures accompanying the text.

Regarding the projection equipment Professor Marshall used for his shows, the newspaper reviews specifically describe illustrations that were microscopic views projected through a magic lantern "by the aid of polarized and microscopic lights passed through various kinds of thin sections". Furthermore, the articles state he physically moved and rotated the rock thin sections in different phases of light to produce "the prismatic colors in various combinations of great beauty" (*Boston Herald or Boston Advertiser*, circa 1879). This evidence indicates that Dr. Marshall did indeed use a microscopic attachment to the lantern as part of his show, along with polarizing filters and real rock thin sections to achieve his unique projections. Micro-photographs of rocks and sand would not produce the optical mineralogical effects described in the the newspaper articles. Examples of simple microscopic devices he may have attached to the magic lantern are shown in Fig. 2. While a more elaborate, complete microscope may have been interfaced to the lantern (i.e. projecting microscope), holding and rotating one or more polarizing filters between the light source and the rock or sand specimen next to a simple but high magnification microscopic lens would have produced the desired effect.

Fig. 2. Examples of simple microscopic lens attachments for the magic lantern.

A review of the McIntosh (1913) and McAllister (1859, 1867, 1892, 1900) stereopticon catalogs during the period in question provides evidence that Dr. Marshall used his own slides. Interestingly, these catalogs show little to no difference in the geologic slides available for purchase over this 55 year period, indicating limited change to these commercial collections of specialized scientific slides during this time frame. Most of the illustrations presented by Dr. Marshall, as described in the newspaper articles, are not listed in the catalogs. Only a few slides have any possibility of being a part of his lecture such as "granite section, X85", "chalk", or "oolitic limestone" found under headings for microscopic slides. A "crystallography" set of slides was common to the catalogs but likely included geometrical schematics of crystal structure, not actual mineral cross sections. We also know the slides included in these catalogs are color photographs emulsified on glass, as the page header in the McAllister catalog even states "Fine Colored Photographs…". Lastly, the majority of microscopic slides included in the catalogs are biological in nature with most geological themes based on large scale features such as mountains, caves, glaciers, volcanoes, landscapes, stratigraphic sections, and fossils.

During Professor Marshall's tenure at Tufts, one of his passions was the care and growth of the mineral and fossil collection, much of which was composed of his own personal acquisitions. His love and appreciation for the field of mineralogy were on full display during lectures that described

and illustrated the physical and optical properties of minerals as well as highlighted the chemical composition and commercial uses of minerals and rocks (*The Evening Telegram*, 1878). The Professor focused on silica as an example during his lecture, mostly found in the form of quartz (composition silicon dioxide, SiO_2), a widely used mineral for all varieties of glass manufacturing, paint and enamels, production of abrasives (sand paper), and development of numerous metal alloys and silicon products in the steel industry. In more recent years, pure silicon crystals have been used as semiconductors in transistors, rectifiers, and solar batteries. Silica gel, a porous form of silica, is used as a drying agent. Some varieties of quartz are semi-precious gemstones such as opal and amethyst (silica) and emerald and topaz (silicates), while others are used as ornamental stones (tiger's eye, agate).

To add some flare to his lectures, Dr. Marshall performed a simple experiment in front of the crowd to show how quartz can precipitate out of water. He demonstrated this by "pouring a quantity of dissolved silica into a large graduate (graduated cylinder), then adding muriatic (hydrochloric) acid, and dipping out the quartz in granular form". Insertion of a string or stick into the super-saturated solution provided a foundation for the silica crystals to attach to. The Professor exclaimed to the audience that "the silica shown was the same as the opal worn by the ladies".

With particular fascination, the Professor emphasized the crystalline forms associated with different minerals; every mineral has one or more characteristic crystal shape that is the external form produced by its crystalline structure (e.g. cubic, rhombohedral, triclinic, etc.). Quartz crystals, for example, always form a definitive hexagonal shape in nature (Fig. 3) and come in many varieties including amethyst, rose, smoky, milky, citrine, and rutiliated forms to name a few. Dr. Marshall noted to the audience that the quartz bound up in solid rocks throughout the northeast (~12% of the earth's crust), including granite, gneiss, schist, and sandstone, eventually gets weathered, ground up, and transported to beaches on the shoreline. The abundance of quartz in sediments around the world is largely due to its stability and hardness, a 7 out of 10 on Mohs scale (ability of one natural mineral to scratch another), with only a handful of minerals recognized as harder such as topaz (8) and diamond (10). The Professor noted specifically that in New England, quartz is harder than the feldspar and mica prominent in metamorphic rocks of the region, thus explaining its resistance to weathering and abundance on the beaches. While feldspar and mica tend to be "ground to an impalpable powder" and transported in suspension in the rivers, heavier and larger quartz pieces sink to the bottom where they are pushed forward along a rocky riverbed, being ground up and polished in the process of becoming granular sediment. Fig. 4 illustrates slides of well rounded quartz grains that have passed through Mother Nature's rock tumbler.

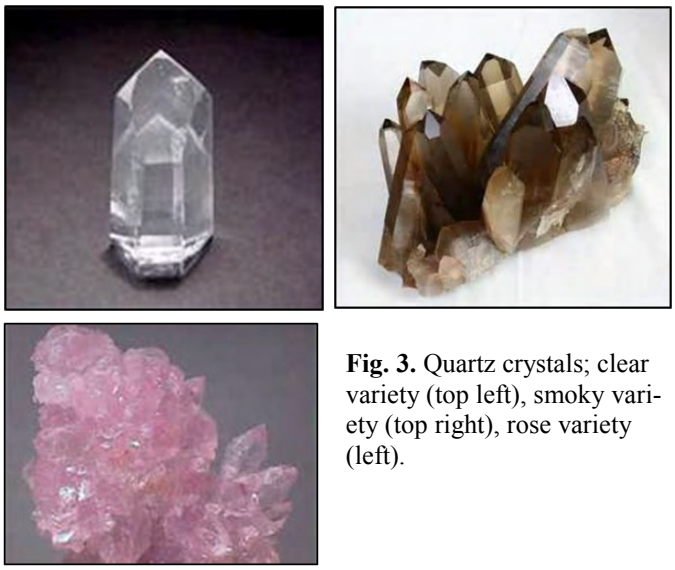


Fig. 3. Quartz crystals; clear variety (top left), smoky variety (top right), rose variety (left).

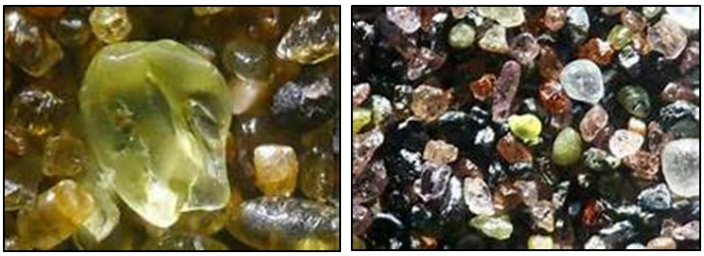


Fig. 4. Modern thin sections of beach sand showing rounded grains. This is indicative of sediment that has been worn down during transport, similar to a rock tumbler.

Optical Mineralogy

Regarding the identification of minerals within a rock, Dr. Marshall explained during his lectures that it can be difficult to determine some minerals visually because many have similar appearances, even under a magnifying lens. However, further magnification using a microscope aided by various phases of light, can reveal characteristics of the minerals not apparent to the naked eye. Microscopic analysis of minerals involves the use of primarily transmitted light through extremely thin slices of rock (thin sections, Fig. 5) or tiny sediment particles to examine crystal structure and composition. Historical information indicates Dr. Marshall would "grind lenses" (presumably glass) for the laboratory equipment while showing students how to master the art as well (Start, 1896). It is possible he used the equipment to cut and grind his own thin sections, but this cannot be confirmed in the literature.

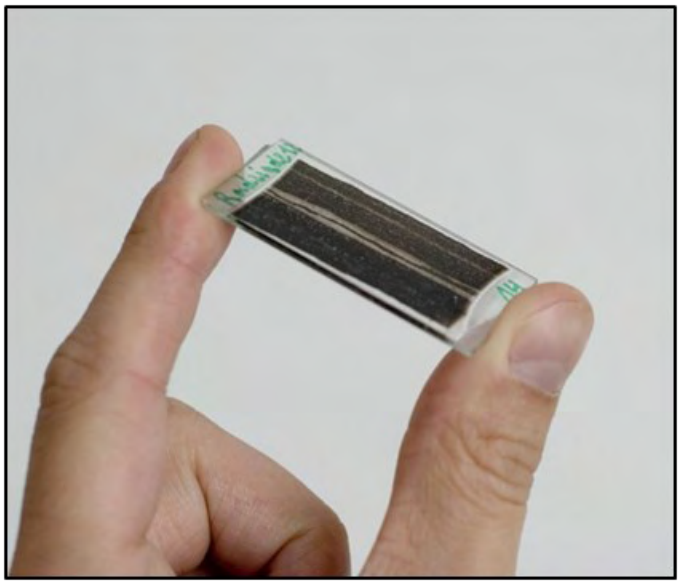


Fig. 5. A modern thin section prepared for microscopic analysis; glass slide is approximately 30x50 millimeters (mm) in size with a rock slice 25x40 mm and .03 mm (30 microns) thick.

The behavior of the minerals under different transmitted light settings (raw unpolarized light vs. polarized light, Fig. 6) as well as the physical and optical characteristics of the grains and crystals (e.g. shape, relief, cleavage, twinning, color, opacity) all help determine what type of minerals are present. Crystalline substances that exhibit different physical properties (e.g. absorption and refraction of light) when measured from different directions are referred to as anisotropic. Most natural materials would fall into this category, and optical mineralogy takes advantage of this phenomenon to distinguish rock composition. One interesting phenomenon is known as pleochroism, which is the color change of minerals as the specimen is rotated in plane polarized light. Certain colors and their variations are distinctive to particular minerals.

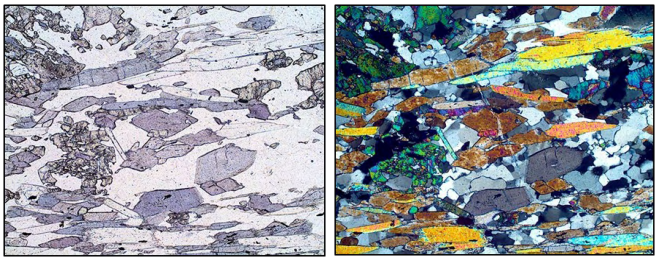


Fig. 6. Modern photo-micrographs of a rock slice from blue schist collected on the island of Syros, Greece. Light is transmitted through the specimen from underneath, up toward the eye piece, without any filters (left image) and through crossed polarizing filters (right image). Images from Heidelberg University, Germany. [This and other figures will appear in color when the *Gazette* is posted online]

Conclusion

"There are few objects that appear more beautiful by polarized light under the microscope than a slide of quartz", Dr. Marshall was quoted during a lecture (*The Evening Telegram*, 1878). Fig. 7 (on p. 23) supports his opinion, with many examples of quartz in rock thin sections under cross polarized light. Further research might reveal just how unique Dr. Marshall's use of the stereopticon was, specifically for the projection of microscopic views of rock, sediment, and mineral thin sections regarding the field of geology. One thing is clear from reading the newspaper reviews; the public was extremely entertained by the unique lectures and amazed at the awe-inspiring, beautiful nature of the projected illustrations. As a conclusion to his lecture, Professor Marshall noted, "…if our powers of vision were strong enough, we should see all mineral matter in its true condition, namely that of crystallization, and the world, beautiful as it is, would be invested with still greater splendor" (Boston Herald or Boston Advertiser, circa 1879). He revealed the microscopic world of geology to his students and his audiences and made a lasting impression.

Acknowledgments

I would like to thank Susanne Bellovari and staff in Digital Collections and Archives at the Tisch Library (Tufts University) for their enthusiastic participation and support. Eagerly and without hesitation, the staff searched numerous building attics and storage areas for remnants of Dr. Marshall's magic lantern and slides, none of which were located. I would also like to thank Colleen Golja, a chemical engineering student at Tufts, who donated what little spare time she had to help conduct research. The spirit and interest exhibited by the library staff and other individuals kept this article going and forced me to finish it, to document all our efforts. Terry and Debbie Borton read and commented on the manuscript.

Bibliography

Gage, S.H. and Gage, H.P. 1914. *Optic Projection; Principles, Installation and Use of the Magic Lantern, Projection Microscope, Reflecting Lantern, Moving Picture Machine.* Comstock Publishing Company, Ithaca, New York, 731pp.

McIntosh Stereopticon Company, 1913. *Projection Apparatus, Accessories, and Slides* (Catalog). Thirty-Seventh Edition, Chicago, Illinois.

Miller, R. 1986. *Light on the Hill: A History of Tufts College, 1852-1952*. Digital Collections and Archives, Tufts University. Medford, Massachusetts. http://hdl.handle.net/10427/14802

Montana, A., Crespi, R., Liborio, G. 1978. *Guide to Rocks and Minerals.* Simon and Schulster, New York, New York, 607pp.

Sauer, A., Branco, J., Bennett, J. 2000. *Concise Encyclopedia of Tufts History.* Digital Collections and Archives, Tufts University. Medford, Massachusetts. http: hdl.handle.net/10427/14829

Start, A.B. 1896. *Digital Edition of the History of Tufts College, 1854-1896.* Digital Collections and Archives, Tufts University. Medford, Massachusetts. http://hdl.handle.net/10427/14803

T.H. McAllister, Manufacturing Optician, 1859, 1867, 1892, 1900. *Catalogue of Stereopticons and Magic Lanterns with Extensive Lists of Views for the Illustration of All Subjects of Popular Interest.* New York.

Periodicals and Pamphlets

The Boston Advertiser. 1879. [Sand; Its Origin and Uses.] Boston, Massachusetts.

The Boston Herald. 1879. [Sand; Its Origin and Uses.] Boston, Massachusetts.

The Evening Telegram. 1878 (8 March). Origin and Uses of Sand (An Instructive and Entertaining Lecture). New York, New York. www.fultonhistory.com

The Lyceum Entertainment Bureau. 1879. Sand: Its Origin and Uses (Illustrated with the Stereopticon). Boston, Massachusetts (?). Borton Collection.

The Organ Solo in Britain

David Evans, Director
Revelstoke Nickelodeon Museum
111 First Street West
Revelstoke BC V0E 2S0
MechMusicMuseum@aol.com

Esther Morgan-Ellis's fascinating account of the use of song slides in the American Picture Palace (*Magic Lantern Gazette* Vol 25, No. 2) prompted me to look at a few of our British cinema song slides. We have an extensive collection of these, several hundred examples, from three different sources. One is from the collection of Edward O'Henry, organist at Madame Tussaud's Cinema, London, in the 1930s. He used many background slides for the Brenograph as well as word and information slides similar to those described in Esther's article. Another collection came from the

Fig. 1. Organ music slide for Brenograph projector, with song slide projected on Brenograph background.

ABC Cinema in Blackpool, Lancashire, where it seems they were used well into the 1940s. One song set is "Here's a Health Unto our New King" (George VI, who came to the Throne in 1939).

The format used for the song slides was the standard UK 3 ¼" square type, and many of them were produced by the Morgan Slide Company ('All the Organists are Morganists' ran their popular advertising slogan) and a lot used a blue background and type faces very similar to those illustrated by Esther.

The Organ Solo spot did not mean a rest for the projectionists:

"Unceasing Watch"

Stan Perry
Supervising Projectionist
Metro-Goldwyn Mayer

THE scene is the projection room. The closing bars of "The End" music comes through the monitor speakers as the film closes. On to the screen comes the organist's announcement title, and at the same time we in the box faintly hear the familiar signature tune which is the signal to "spot" our friend down there as he rises majestically on his console into full view of the audience.

Does this mean that we can take a rest while the organ solo is on? Not on your life! Four projectionists are now going to "sweat" for the next ten or fifteen minutes. The routine goes something like this.

The signature tune ends and the organist swings half round to speak into his mike—and we've got to "get him over." Then the buzzer goes— the signal for No. 1 slide to illustrate what he's playing. There are usually twenty to thirty slides, so that the lantern takes care of one projectionist.

slides, so that the lantern takes care of one projectionist.

Two "spots" are now in action; one flooding the console, the other concentrating on the keyboard because our friend's hand must be shown in action. Result: two more projectionists busy. And don't let's forget the coloured backgrounds, which means another projectionist on the Brenograph.

We carry on until—what's this? Slide No. 15, "Old Fashioned Home." This is where a projectionist leaves one of the spots to take care of itself while he starts up a film previously threaded in the projector, to be used as a pictorial background.

The Brenograph has been cut off while this number is on, but the operator has had to stand by to bring it in again at the end of the item.

All is silent in the projection room except for the regular buzz of the slide changer and the plop of the slides as they are dropped into the carrier.

We come to the last number, and a record is required on the non-sync., just to make sure that we use almost everything we've got in the projection room. On goes the record; and as it nears its end, the organist builds up on his closing bars.

He stops. The record ends. We give him the white spot, close screen curtains and then house curtains, cut off the slide lantern and the Breno-graph. The keyboard light spots his bowing as he goes down on the console, playing his signature tune. The house lights come up—pause—they go down again. Both sets of curtains open and the title of the feature hits the screen. That's that!

What precisely was needed to put over that Organ *solo?* Only four projectionists, two spotlights, one slide lantern, one Brenograph, one projector, one mike, one non-sync., thirty slides, six background pieces, one film and one record—these apart from rehearsals, split second timing, and team-work. But that's show business.

From 'Theatre Organ World', edited by Jack Courtnay, Fellow of Trinity College, London, organist at the Empire Theatre, Leicester Square, music editor of Kinematograh Weekly and Ideal Kinema, Hon Sec & Treasurer, Association of Theatre Organists, Hon Sec of Theatre Organists' Benevolent Fund. First published 1946 by Theatre Organ World Publications of London in aid of the Theatre Organists' Benevolent Fund.

NOTE

The coloured backgrounds mentioned would entirely fill the cinema screen and would be projected from the Brenograph, for example, perhaps a proscenium arch. The lantern slides illustrating what the organist was playing might be either titles with a coloured image to illustrate it or perhaps words for the audience to sing along to. They would be projected within the image projected by the Brenograph (see Fig. 1).

The Research Page provides short summaries of scholarly research articles related to magic lantern history in a variety of disciplines. For a complete bibliography of research articles related to the magic lantern, visit the Zotero Magic Lantern Research Group at: http://www.zotero.org/groups/magic_lantern_research_group.

Rianne Siebenga. 2013. Picturing Muharram: Images of a colonial spectacle, 1870-1915. ***South Asia: Journal of South Asian Studies*** **36:626-643. (http:/www.tandfonline.com/doi/abs/10.1080/00856401.2013.836069?journalCode=csas20).**

This article describes the depiction of the Indian Muslim festival of Muharram in pictorial media of the late 19th and early 20th centuries, including magic lantern slides, postcards, and films. Most of these were made in Europe and directed at audiences from colonial powers, especially Britain. The author analyzes differences in the way the festival was depicted in different media. There also is a discussion of the preprinted lantern readings that were available to accompany magic lantern shows on the festival. One lantern slide is illustrated. The author has drawn on some publications of the Magic Lantern Society in Britain, as well as lantern readings posted on the Lucerna webpage. The article is of interest not only because of the exotic subject matter, but also because it illustrates connections between different visual media.

Rianne Siebenga. 2012. Colonial India's "Fanatical Fakirs" and their popular representations. ***History and Anthropology*** **23:445-466.**

This article, by the same author as the previous one, discusses the depiction of Hindu fakirs (religious ascetics) in postcards and magic lantern slides, but in this case, the main focus is on lantern slide lectures. Three lantern slide lecturers are discussed in detail. The first is F. O. Oertel, and engineer who worked in colonial India and left behind a collection of hundreds of slides, mostly his own photographs. These are now in the India Office of the British Library. The second is Harold Mackinder, one of the founders of the Colonial Office Visual Instruction Committee, which produced a set of slides on India from about 1902 to 1914. Both illustrations of the slides and texts for the accompanying lectures were published. Finally, the author discusses the India lectures of American John L. Stoddard, which also were published. The author often finds a disconnect between the lecture texts, which emphasized the filthy and degraded nature of the fakirs, and the slides, which did not necessarily depict them this way. The lecture texts are thought to be influenced by the typical British view of their colonial subjects as dirty, unsophisticated, and often dangerous. The article includes two images taken from Stoddard's published lectures, presumably of slides included in the lectures. The author asks why Stoddard's images often did not match the very negative descriptions of fakirs in his published text. One answer is that Stoddard did not take his own photographs and generally did not refer directly to particular slides in his lectures.

Annemarie McAllister. 2012. Picturing demon drink: how children were shown temperance principles in the Band of Hope. *Visual Resources* 28:309-323.

This article describes the ways in which visual images were used by the Band of Hope to convey temperance messages to children, with a particular focus on magic lantern slides. The Band of Hope was founded in 1847, and amazingly, still survives to this day. Its main mission was to instruct people in the evils of drink. From its early days, there was particular concern about drinking by children leading to a lifetime of bad habits. Lantern slide lectures were one of the most effective was of communicating this message to children, and the Band of Hope maintained a large stock of lantern slides to lend out to lecturers. Dozens of lecturers fanned out across Britain, presenting magic lantern shows with a temperance message to groups of children. The group was immensely successful in recruiting members, such that by 1901, there were nearly 30,000 local societies in Britain with about 3.5 million boys and girls as members. The author describes in some detail the kinds of messages conveyed by the Band of Hope lantern slides, which focused on morality and concerns about health, wealth, and national strength, as affected by excessive drinking. A number of lantern slides are illustrated in the article, including the notorious "cankerous stomach of a spirit drinker."

Mark Byron. 2012. The House of Usher as Phantasmagoria. *Sydney Studies in English* 38:81-109.

Many scholars have found phantasmagoric elements in the writings of Edgar Allan Poe. Here the author argues that the narrative of "The Fall of the House of Usher" has the structure of a phantasmagoria show. Most of the article is devoted to a literary analysis of the story, as well as various stage and film adaptations of Poe's story. There is a brief discussion of the real phantasmagoria and an illustration of a late 19th century magic lantern and a Beale lantern slide from Poe's "The Raven." Unfortunately, the author relies on secondary sources for his description of the phantasmagoria, especially the writings of Terry Castle and Jonathan Crary. The latter author tends to confound the magic lantern with the camera obscura, and the author of this article follows his example when he states that "Robertson adapted his camera obscura to project images of ghosts, murder victims, and other macabre images" (P. 101).

David Fresko. 2013. Muybridge's magic lantern. *Animation: An Interdisciplinary Journal* 8:47-64.

Eadweard Muybridge has been the subject of numerous books and scholarly articles, yet new scholarship on Muybridge's photographic work continues to appear. This article focuses on his 20-year career as a lecturer, making use of both still lantern slides and his famous zoopraxiscope, which presented animated pictures of horses in motion and other images. The author's analysis is based mostly on an archive of Muybridge lantern slides held in the collection of Stanford University. Muybridge's still lantern slides showed more detail than did his images for the zoopraxiscope, which essentially were silhouettes or painted animations. He employed his still photographs to show the reality of how the feet of horses are positioned when they are running, to supplement the actual movement of the animated silhouettes. Even so, some viewers dismissed the images as unbelievable. Muybridge's lectures often specifically compared his photographs of running horses with well-known paintings of horses, pointing out the errors made by artists who were unable to see the movements of horses frozen in time. Some of the analysis becomes rather theoretical, with frequent references to the writings of Walter Benjamin and Roland Barthes, but is also contains much of interest to readers of the *Gazette* and is illustrated with numerous examples of Muybridge's lantern slides.

Stephen Herbert and Alexandra Reynolds, eds. 2013. Eadweard Muybridge issue. *Early Popular Visual Culture* 11:1-96.

This special issue of *Early Popular Visual Culture* devoted to the work on Eadweard Muybridge was inspired by a number of recent museum exhibitions of Muybridge's work and renewed scholarly interest in Muybridge. In his introduction to the issue, Stephen Herbert reviews these events and outlines some of the new directions in Muybridge research. All of the articles in the issue should appeal to readers of the *Gazette*, but several will be of particular interest. Deac Rossell's article on "Chronophotography in the Context of Moving Pictures" reviews the work of Muybridge, Marey, Demenÿ, and Anschütz, along with some less well known chronophotographers. Several of these men have been credited as the "inventor" of the cinema, but they all had somewhat different approaches and motivations for making sequences of photographs into moving pictures. An article by Esther Leslie on "Loops and Joins: Muybridge and the Optics of Animation" discusses Muybridge's contributions to moving pictures with other techniques, including the phantasmagoria, the *Motograph Moving Picture Book*, and photographs, animations, and films of serpentine dances. Marta Braun, in "Muybridge, Authorship, Originality" describes the many ways that Muybridge altered, manipulated, and rearranged his sequential photographs to achieve the effects he desired. Along with a couple of other articles, the issue is rounded out with three reviews by Stephen Herbert of recent books about Muybridge. These include a short but important biography by Marta Braun, an entertaining and well-researched book about Muybridge and Leyland Stanford by Edward Ball, and the catalog of a major Muybridge exhibition that was held at the Corcoran Gallery of Art in Washington, with scholarly essays by Muybridge experts.

***The Magic Lantern Society Newsletter*, Number 111 (March 2013) and *The New Magic Lantern Journal*, Volume 11, Number 4.**

This issue of *The New Magic Lantern Journal*, the research journal of the Magic Lantern Society in Britain, starts on p. 6 of the *Newsletter*. It includes two wonderful scholarly articles, fully illustrated in color. The first, by Trevor Beattie, provides a detailed look at the artistry of the lantern-slide makers Carpenter and Westley. The article not only gives a full accounting of the history of their firm, but also has many beautiful illustrations of some of the best of their copperplate slides, including comic scenes, zoological slides, and Biblical views. The article also provides important information on some of the artists who produced the slides. The second article, by Helmut Wälde, is the first of a series on German toy magic lanterns, this one focusing on ceramic lanterns. Magic lantern collectors will be green with envy when they see the color photograph of six different sizes of square lanterns with decorated ceramic panels. These lanterns are very rare today and much desired by collectors, but surprisingly, were not originally much more expensive than other lanterns of similar size ($2.00 -$4.00). Much of the article describes the many variants of square ceramic lanterns, which came with a variety of floral and other designs and different styles of chimneys, different styles of feet, etc. Wälde's detailed research will be invaluable to future scholars and collectors who own one of these lanterns but know little about them.

***The Magic Lantern Society Newsletter*, Number 112 (May 2013) and *The New Magic Lantern Journal*, Volume 11, Number 5.**

This is a relatively short (12 pages) issue of the *Magic Lantern Society Newsletter*, with *The New Magic Lantern Journal* occupying pp. 5-8. The major research article is the second part of Helmut Wälde's article on German ceramic toy magic lanterns, this one focusing on those with spherical or cylindrical ceramic bodies. As with the square models, these came in a variety of sizes and with different decorations. Although these lanterns, and the square ones, often have been attributed to well known makers such as Falk and Dannhorn, the author finds little support for this assumption, since most of the lanterns lack maker's marks. Round ceramic lanterns seem to be even rarer than the square models, in part because the body of lantern itself is ceramic and therefore easily broken. The other research article in this issue is a one-page piece by Bill Barnes on three models of Lumière Cinématographe Cameras.

***The Magic Lantern Society Newsletter*, Number 113 (September 2013) and *The New Magic Lantern Journal*, Volume 11, Number 6.**

The first research article in this issue, starting on p. 4, is an interesting piece by Mitsue Ikeda on "Reconsideration of *Nishiki Kage-E* (The Japanese Magic Lantern) from a Practical Perspective." Japanese magic lanterns are fascinating, because they are so different from Western models, made largely of wood rather than metal, and designed to be handheld and moved about by the operator to produce moving images projected on the back of a translucent screen. The article provides a detailed history of Japanese magic lanterns, from the original introduction of metal lanterns by Dutch traders to the present day. The Japanese quickly adopted their own unique designs for wooden magic lanterns and developed a unique form of exhibition and storytelling. These shows have been revived by Minwa-za and presented at one of our conventions several years ago. In the second research article, Philip Banham provides a look at "Silhouette Slides." These are not the crude and often incomprehensible cheap silhouettes marketed by American manufacturers like McAllister, but real works of art. Particularly spectacular are some incredibly detailed silhouette long slides showing processions of soldiers, as well as slides with ships that probably were projected on a scenic background. The article is a very interesting exploration of a unique form of magic lantern slides.

***The Magic Lantern Society Newsletter*, Numer 114 (December 2013) and *The New Magic Lantern Journal*, Volume 11, Number 7.**

Most of this issue is devoted to a summary of the Magic Lantern Society convention, held in Birmingham in October. There are two short research articles in *The New Magic Lantern Journal* portion of the issue (pp. 6-9). The first, by Andrew Gill, introduces the photography of Graystone Bird of Bath, the most prominent of the British lantern-slide makers who specialized in the genre of "common life" slides—images of children playing on the beach, fisherman, country cottages, and similar images. There is a brief biographical sketch of Bird, along with several of his outstanding lantern slides. The second research article, by Simon Warner, describes the restored Daguerre Diorama at Bry-sur-Marne, with some wonderful color photographs of the perspective paintings in the actual diorama.

Martyn Jolly. 2013. *Soldiers of the Cross*: Time, narrative and affect. *Early Popular Visual Culture* 11:293-311.

This article provides a detailed look at *Soldiers of the Cross*, an evangelical lecture produced by the Salvation Army in Australia. The lecture included 200 hand-colored lantern slides and 15 one-minute motion pictures. These slides were derived from a number of sources. Many were live-model slides in which costumed members of the Salvation Army posed in Biblical scenes. These were mixed with commercially available slides, including Gustave Doré Bible scenes. Many of the live-model slides are illustrated in the article. The author describes the lantern slide lecture in detail and also shows how the Salvation Army's

"Limelight Brigade" fit in with a thriving magic lantern culture in Colonial Australia. By 1894, the Brigade had its own studio to produce live-model slides for a variety of magic lantern shows. The 1900 production of *Soldiers of the Cross* was one of their most spectacular events, attracting audiences in the thousands.

Erkki Huhtamo. 2013. The dream of personal interactive media: a media archaeology of the Spirograph, a failed moving picture revolution. ***Early Popular Visual Culture*** **11:365-408.**

Several years ago at one of our society conventions, Erkki Huhtamo gave a fascinating demonstration of a strange motion picture projector called the Spirograph. Now, after a decade of research, he brings the story of this projector up to date. The Spirograph used a unique arrangement of microphotographs arranged in a spiral on a disk to produce moving pictures. It was invented by Theodore Brown, but it was Charles Urban who attempted to manufacture and market the device commercially. A considerable amount of money was invested in this project, with a lot of promotional material promising the availability of the machine and picture disks. Urban's idea was to market the projector (which also could be used as a personal viewer) for educational purposes. Picture disks were classified into categories such as Popular Science, Animal Kingdom, Travel, and Prominent People. Alas, the whole enterprise was a commercial failure, and Urban's dream of providing thousands of moving picture disks to schools as a "Living Book of Knowledge" was never fulfilled. Today, only eight of the Spirograph projectors are known to exist, along with a few dozen picture disks. The author has tracked down all of these in museums and private collections (including his own collection), along with virtually every piece of paper relating to the Spirograph. This heavily footnoted article tells the fascinating story of this failed media experiment and relates the Spiragraph to other developments in visual media in the 19th and early 20th centuries, as well as more recent developments in digital media.

Erkki Huhtamo. 2013. (Un)walking at the fair: about mobile visualities at the Paris Universal Exposition of 1900. ***Journal of Visual Culture*** **12:61-88.**

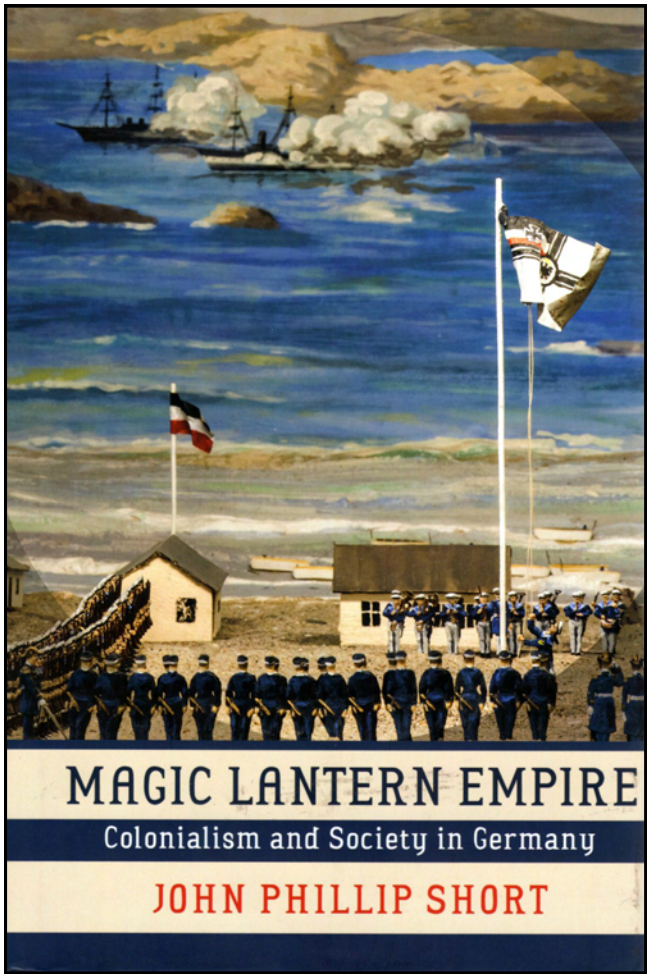
This article is not about magic lanterns, although they are briefly mentioned. Nevertheless, it is a typically engaging article by society member Erkki Huhtamo. His theme is the system of moving walkways that allowed visitors to the Paris Exposition of 1900 to be transported around the fair without having to walk long distances. This device essentially turned the fair into a sort of moving panorama, with visitors getting broad views of fair buildings from the somewhat elevated moving platform. Even nearby apartments became objects for peeping visitors to enjoy, with one writer complaining about residents who kept their curtains drawn while the fair was open. This moving visual spectacle was not very successful as a commercial enterprise, probably because of the high price of tickets. Nevertheless, it was a notable feature of the exposition, often commented upon by visitors. It also spawned items such as a board game and mechanical toys with moving platforms. These spinoffs are illustrated, along with a variety of charming photographs, postcards, and prints depicting the *Trottoir roulant*, mostly from the author's personal collection.

John Plunkett. 2013. Moving panoramas c. 1800 to 1840: the spaces of nineteenth century picture-going. ***19: Interdisciplinary Studies in the Long Nineteenth Century*** **17:1-32.**

John Plunkett is one of the leading scholars currently working on 19th century visual spectacles, including magic lantern shows and panoramas. This article derives from a larger collaborative project on moving and projected entertainment in southwestern England, including the cities of Bristol, Exeter, and Plymouth. The author makes use of newspaper announcements to trace the exhibitions of moving panoramas in these cities and nearby towns and rural areas. These panoramas covered subjects that were suitable for visual spectacles, such as polar exploration, Biblical scenes and views of Jerusalem, the Battle of Waterloo, British colonial wars, etc. Sometimes exhibitors created local tie-ins. For example, one panorama of the harbor of New York enjoyed a long run in Bristol corresponding to the launch of the steamship *Great Western* in 1838, a ship specifically designed for regular Bristol to New York runs across the Atlantic. This well written article makes a fascinating complement to Erkki Huhtamo's recent book on moving panoramas reviewed in the last issue of the *Gazette*.

Marcella Pellegrino Sutcliffe. 2013. Marketing 'Garibaldi panoramas' in Britain (1860-1864). ***Journal of Modern Italian Studies*** **8:232-243.**

If the previous article takes a "micro" view of moving panoramas by focusing on the region of southwest England, this article adopts a "mini-micro" perspective by examining a particular genre of moving panoramas over a very short time period. In the 1860s, the exploits of the Italian "liberator" Garibaldi were much in the news in Britain. Panorama showmen took advantage of this interest in current events to produce moving panoramas illustrating some of Garibaldi's military campaigns in Italy. Early Garibaldi panoramas sometimes were combined with seemingly unrelated views, such as castles of the Rhine. The Garibaldi panoramas were mainly a phenomenon of the provincial cities, not London, where theatrical performances about Garibaldi held sway. The author argues that interest in Garibaldi panoramas faded by the mid-1860s as the news about Italy changed from heroic deeds of Garibaldi to squabbling among Italian political figures. In 1864, one Garibaldi panorama was for sale, with the seller willing to accept dissolving views in exchange.



John Phillip Short. 2012. *Magic Lantern Empire. Colonialism and Society in Germany*. Cornell University Press, Ithaca, NY. ISBN 978-0-8014-5094-5. 232 pp. $39.95 (hardcover).

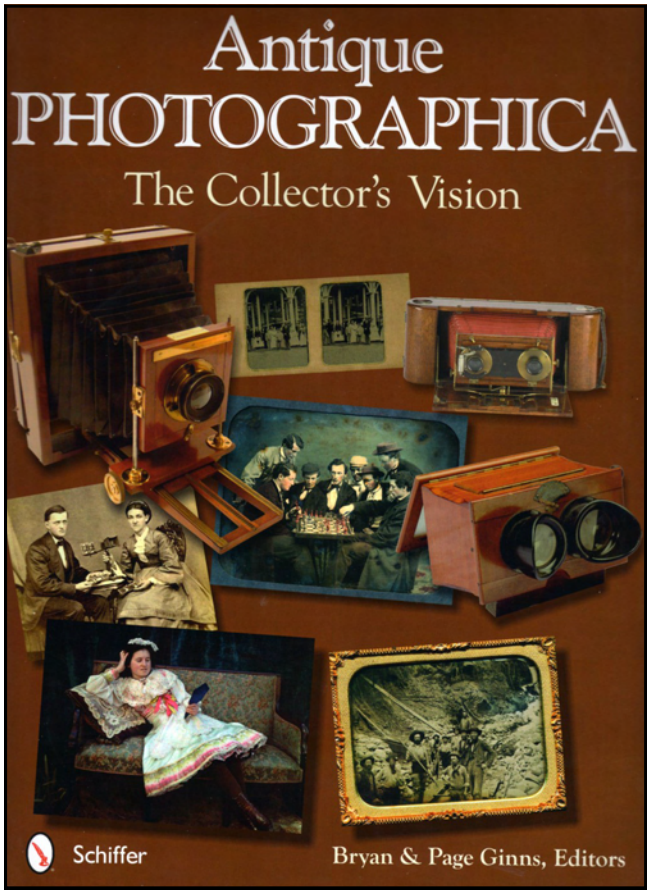
Considering that most people have never heard of a magic lantern and could not identify one if they saw it, it is surprising how many books are published with "magic lantern" in the title. In this case, the term refers to both actual magic lantern shows and a metaphor of a magic lantern. The book examines public perception of colonialism in late 19th and early 20th century Germany, especially the way colonial possessions were depicted in visual media, including postcards, panoramas, illustrated newspapers, and magic lantern slides. Germany came rather late to the dubious enterprise of taking over other people's lands and cultures, since Germany itself only became a unified country late in the 19th century. Germany's overseas empire was short lived—it lost its colonies in World War I. In Africa, the main focus of this book, Germany got the leftovers after Britain, France, and other European powers had carved up much of the continent for themselves. Much of this book considers representations of German holdings in Cameroon and Southwest Africa (now Namibia).

Magic lantern lectures on Germany's overseas possessions were common in the colonial period. Some were given by amateur photographers, such as Hermann Schlüter, who lectured on a revolt of the Herero people of Southwest Africa in 1904. He was one of many itinerant lecturers and showmen who presented lantern slides at local learned societies and voluntary associations. The author distinguishes the efforts of these lecturers and showmen with those of more official organizations. One of the major sponsors of lantern slide lectures was the German Colonial Society; another was the Navy League. According to the author, "The limitless appetite for such magic lantern slide lectures was striking," with one propagandist stating that "the main means to education will always be lectures and, in connection with them, the showing of slides that illustrate the landscape, life, and activities in the colonies" (p. 54). Often lectures focused on the economic benefits of colonialism, with scintillating titles such as "India Rubber: its Production, Processing, and Economic Significance" (p. 54) and "What do the German Colonies Already Today Supply for the Households of the German People?" (p. 55). The main purpose of these lectures was propaganda—building support for the colonial enterprise in general and encouraging emigration of workers to Germany's colonies. To reach working-class audiences, organizations such as the German Colonial Society recruited working-class speakers to give lantern slide lectures and provided the slides for these shows. Local chapters of the Colonial Society also sponsored free public lectures, or sold blocks of tickets to factory owners .

In the final chapter of the book, the author uses a traveling magic lantern show with dissolving views of colonial Africa to reflect on the relationship of colonialism to German society. The dissolving views, he says, "glow magically, and recede. Metaphorically, they suggest the strangely spectral reality of the German colonial empire, the contradictions defining colonial discourse. The distant colonies are brought closer; they appear as chimerical markets, impossible settlements, unattainable" (p. 148). Oddly enough, the dust jacket picture is not of a magic lantern slide, but a diorama of colonial times in a museum in Namibia.—**The Editor.**

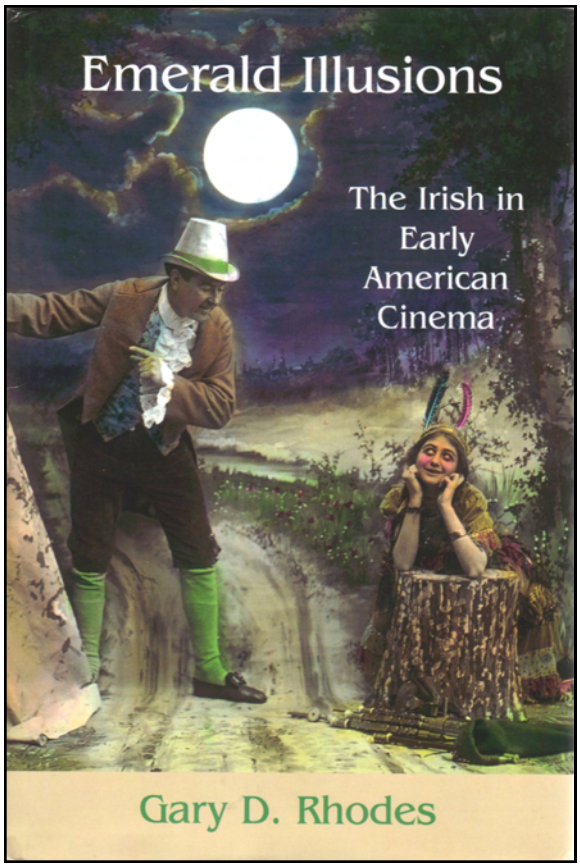
Bryan and Page Ginns, eds. 2013. *Antique Photographica. The Collector's Vision*. Schiffer Publishing Company, Atglen, PA. ISBN 978-0-7643-4428-2. 272 pp. $69.99 (hardcover).

This is a book written by collectors for collectors, and it is very well done. Many books on antique collectables are little more than price guides with a lot of photographs. This book, edited by members of our society, takes a different approach. A line-up of leading collectors of photographic material provide scholarly essays on their particular areas of



expertise. Everything photographic is covered—antique cameras, Daguerreotypes, tintypes, stereoviews, and yes, magic lanterns. Society member Dick Balzer provides one chapter giving a concise history of magic lanterns and optical toys, beautifully illustrated in color from his own collection. Numerous antique prints of magic lanterns and related optical devices are a particular highlight of this chapter, which is designed to broaden readers' ideas about what might be included in "photographica" collections beyond the obvious photographic equipment and images. Another chapter that will appeal to many readers of the *Gazette* is on the history of the camera obscura by Jack and Beverly Wilgus, who set up an outdoor room-sized camera obscura at our 2008 society convention in Washington, D. C. The whole book is a treat to look at, beautifully illustrated in full color in a large coffee-table format.—**The Editor.**

The Wilgus camera obscura set up at our Washington convention. Photo by K. D. Wells.



Gary D. Rhodes. 2012. *Emerald Illusions. The Irish in Early American Cinema.* Irish Academic Press, Portland, Oregon. ISBN 978-0-7165-3143-2. 426 pp. $79.95 (hardcover).

This well-researched and well-written book is an important addition to the literature on early American cinema and makes a major contribution to research on the magic lantern as well. The book describes the depiction of the Irish in early American cinema, but it goes well beyond that. The first chapter discusses the strengths and weaknesses of previous research on this topic. The author then describes the history of Irish characters and Irish themes in American live theater. These include both negative stereotypes of the Irish, as well as dramas by Irish-American writers like Dion Boucicault, both of which influenced later depictions of the Irish in lantern slides and movies. There is a long and detailed chapter on lantern slides. Part of this chapter covers lantern-slide lectures about Ireland or the Irish, including those of John L. Stoddard and Burton Holmes. Even the Irish lectures of Professor Cromwell are mentioned, although he is incorrectly called "A.G." Cromwell instead of "G. R." There also is a detailed and well illustrated section on illustrated song slides with Irish themes (including those illustrated on the front and back dust jackets). Material on lantern slides appears from time to time in the main part of the book on movies, emphasizing the impact of lantern slides on later media.—**The Editor**.

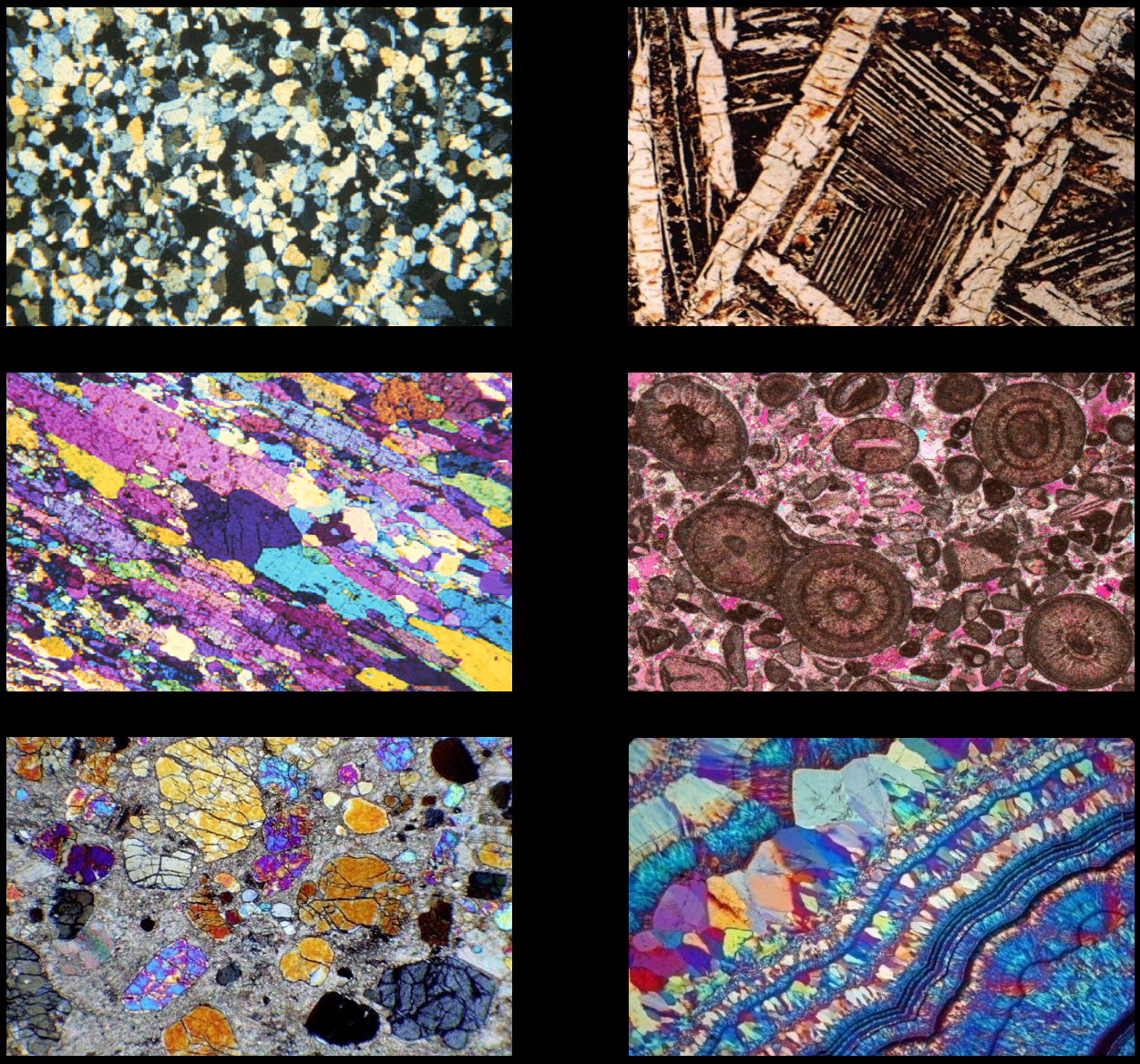


Fig. 7. Images of rock thin sections are included here as examples of some possible illustrations Dr. Marshall used in his lecture to fascinate the crowd (with polarizing filter).

Top left: Arkosic sandstone (sedimentary rock) with lots of quartz and feldspar [Nicholas Institute, Duke University].

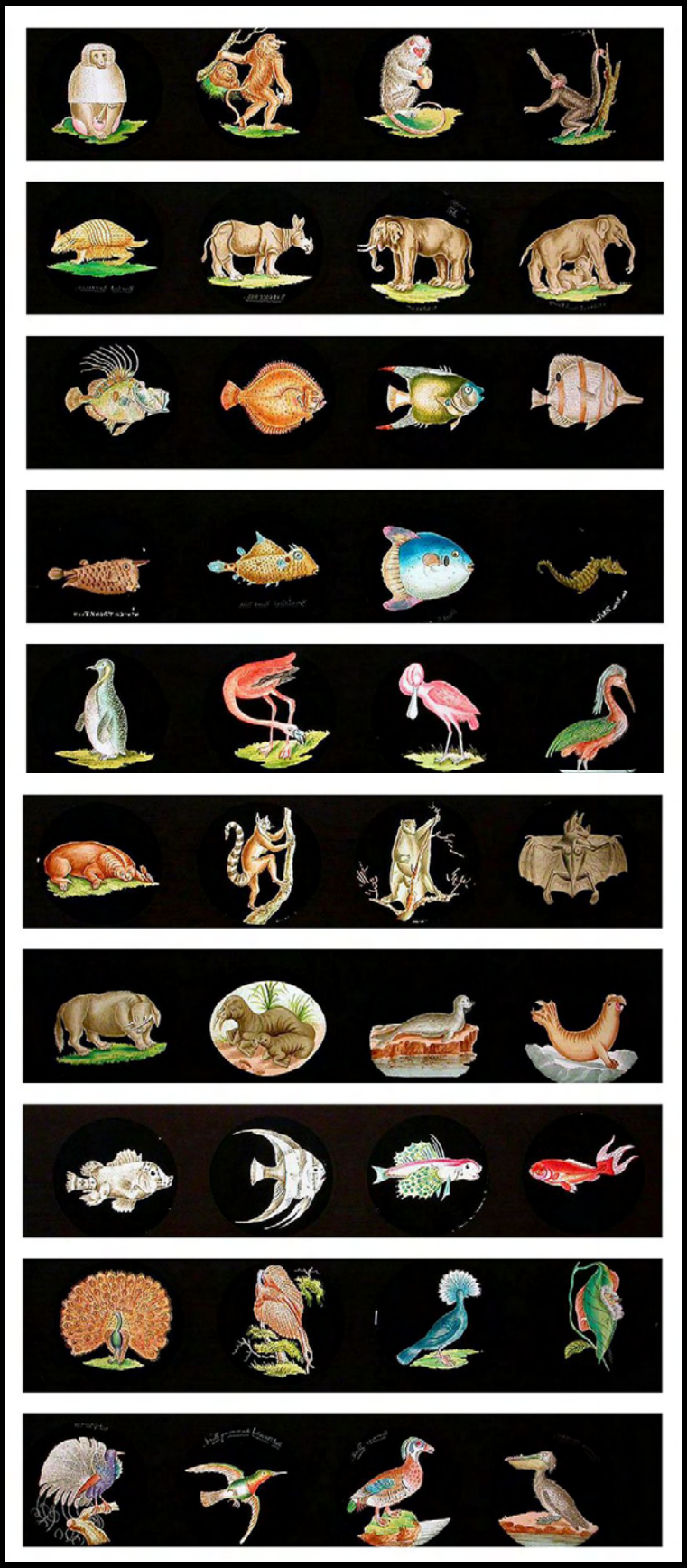
Top right: Lava crystals (igneous rock) that are large from fast cooling [Igor Puchtel, Univ. of Maryland].

Middle left: Schist (metamorphic rock) with typical flat, angular crystals [Nicholas Institute, Duke University]

Middle right: Limestone (carbonate sedimentary rock) commonly found with fossils [Bernardo Cesare, Corbis images]

Bottom left: Marble (metamorphosed limestone)

Bottom right: Agate (volcanic rock) showing layers of different crystal sizes and shapes [Wellcome Images] [D.J. Waters]



Twelve hand-painted magic lantern slides with illustration outlines printed by copper-plate engraving by the London firm of Carpenter & Westley. Collection of F. Boisset and S. Ibáñez.

Front Cover: 19th century English hand-painted slide. Wells collection.